# THE ANNALS

AND

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[With Four Plates.]

THE cuttings for the Great Western Railway between Chippenham and Wootton Basset having been almost entirely in the Oxford clay, and having exposed nearly the whole of that deposit, numerous fossil remains have been discovered, including many new species. The Oxford clay, in this neighbourhood, forms three distinct beds, viz. the upper and lower blue clays, separated by the ferruginous Kelloway rock; and each division has its distinct fossils, although several species are common to each of the three divisions. Besides the undescribed species, many have been found throughout the series which had hitherto been considered as characteristic of either higher or much lower beds; thus Ostrea deltoidea and Gryphæa virgula are numerous in both the upper and lower beds, though formerly considered to be confined to the Kimmeridge clay; and several shells belonging to the inferior oolite, as Astarte modiolaris and Lima proboscidea, with some others, are found in the upper beds near Wootton Basset. In the neighbourhood of Christian Malford, about four miles from Chippenham, the site of the Kelloway rock appears to be represented by a bed of gravel a few feet in thickness, which, besides the usual fossils of that bed, contains also numerous rolled specimens from the neighbouring hills of coral rag and calcareous grit. Bones of the Elephant and other mammalia have also been found in it. Beyond the gravel to the N.W., in the direction of the rise of the strata, the clay assumes a slaty character, and contains numerous fossils, chiefly peculiar to the spot, such as ten or twelve species of Ammonites, more than half of which are undescribed, several species of Belemnites, Sepiæ, Fishes, and numerous shells, which although much compressed are beautifully perfect.

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a nearly perfect condition, but from their flattened state it is often difficult to determine their distinctive characters; this has however been attempted in the following descriptions, which have been drawn up after an inspection of several hundred specimens; and of a few individuals, which, having fortunately been found in indurated nodules in the clay, and thus preserved from compression, exhibit characters which the usual state of the fossils do not afford. The specimens described are partly from the author's collection, and partly from that of the Bristol Institution, which possesses an extensive series of fossils found in the same locality, collected by the zeal of Mr. S. Stutchbury. Some apology may seem necessary for having employed proper names so extensively in the designation of the species; but in a genus, the general characters of which are so similar, and in which the species are so numerous, it is difficult to find characteristic distinctions: this genus has also, by almost general consent, been adopted to commemorate the names of individuals, who have distinguished themselves either by their discoveries in the science, or by their love and patronage of it.

# 1. Ammonites Elizabethæ. Pl. III. fig. 1, 2, 3, 4.

Shell angular, arising from a series of spines on each dorsal edge, and two rows of tubercles on the sides of the volution, one near the middle, another smaller and compressed near the inner margin; radiated, the rays varying very much in number and elevation, curved or undulated, but becoming angular near the aperture of the adult shell, which has on each side a long, narrow, spatulate projection, the prolonged rays forming waves or loops on its surface; volutions six or seven, about  $\frac{2}{3}$ rds exposed; back narrow, concave, the rays passing over it and forming low obtuse ridges; siphunculus not visible.

The number and length of the spines and tubercles, and the mode in which they are combined with the rays, appear to indicate several distinct species, but on closer examination it is seen that all the varieties pass into each other, the same specimen sometimes containing more than one form.

The spines and rays vary from sixteen to upwards of sixty on the last volution, and they are large and elongated in proportion to the smallness of their number; in the simplest form, a single irregular ray, terminated on the dorsal edge by a long sharp spine, connects it with the tubercles, scarcely reaching the inner one in others; two, three, and sometimes four rays arise from the spine and unite in the middle tu-

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# 2. Ammonites Comptoni. Pl. IV. fig. 1.

Shell discoidal, radiated, the rays alternately two short and one long; the long rays proceeding from the dorsal to the inner margin, where they become thickened, the two short rays not passing beyond the middle of the volution; they are curved backwards near the dorsal edge: in the young shell the rays are close, sharp, and slightly elevated; when full-grown the last volution has a few obtuse undulations, but is nearly smooth; back rounded, with a slight depression in the middle, formed by the nearly meeting rays; the whole shell without spines or tubercles; volutions 6 or 7,  $\frac{2}{3}$ rds exposed; aperture terminated on each side with a spatulate projection about  $1\frac{1}{2}$  inch long when fully grown, and of similar characters with Am. Elizabethæ.

# 3. Ammonites Stutchburii. Pl. IV. fig. 2 and 3.

Shell discoidal, radiated; the rays curved, very regular, forming raised lines which reach from the dorsal edge to about the middle of the volution, where they meet a row of small, compressed, distant tubercles, beyond which is another row near the inner margin; these tubercles vary much in number and relative size; volutions \( \frac{2}{3} \text{rds exposed}; \) aperture forming a projecting beak, with waved strize on its surface; back narrow, marked by the rays passing over it, and terminated on each edge by a range of serrated sharp points formed by the termination of the rays; volutions exposed, showing both ranges of tubercles.

### 4. Ammonites Sedgwickii. Pl. V. fig. 1.

Shell discoidal, nearly smooth on the last volution, but having a row of tubercles upon the inner margin; the spaces between them twice as large as the tubercles: in the young shell sharp raised lines proceed from the rounded back to about the centre of the volution, but do not reach the tubercles; they become indistinct towards the aperture; volutions \( \frac{1}{4} \text{the exposed} \), the last about half the diameter of the shell; aperture not projecting, forming a well-defined twice-curved termination.

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5. Ammonites Lonsdalii. Pl. V. fig. 2.

Shell discoidal, radiated (when young) with numerous waved, well-defined, raised lines, which become more obtuse and fewer as the shell increases in size; near the aperture they pass into fine striæ; the rays rise from the dorsal edges, and scarcely reach the middle of the side; the aperture forms a regular concave termination, except on the inner edge, where it bends back like the handle of a sickle; volutions \( \frac{1}{3} \text{rd} \) exposed, the last more than half the diameter of the shell.

6. Ammonites fluctuosus. Pl. VI. fig. 1 and 2.

Shell discoidal or lenticular, radiated (when young) with numerous sharp raised lines, which are alternately long and short; the short combining in twos or threes with the longer ones about the middle of the side, some remaining distinct: as the shell advances in age the inner half of the long rays becomes much thickened, until they form obtuse elevated ridges, with broad, concave, smooth spaces between, the short rays gradually disappearing; volutions numerous, <sup>2</sup>/<sub>3</sub>rds exposed; shell reaching 6 inches in diameter, without any appearance of projecting aperture.

7. Ammonites Brightii. Pl. VI. fig. 3, 4.

Shell discoidal, nearly smooth, but having several flat, obtuse ridges arising from the dorsal edge, which combine a little beyond the middle of the volution into a compressed elongated tubercle which reaches the inner margin; the tubercles are about one-third as numerous as the ridges, and meet them in a rounded right angle: in the young shell they are hardly visible, and also become obsolete near the aperture, the sides of which suddenly contracting to about one-third, again expand into a transverse oval projection, finely waved or striated; the back of the shell also projects in a point, and forms with the sides a concave arch; a sharp ridge on the back marks the siphunculus; volutions about 7, \( \frac{2}{3} \text{rds exposed.} \)

8. Ammonites Gulielmi, Sowerby, Min. Con., pl. 311.

This species differs considerably from the description given by Sowerby, although there can be no doubt of its being the same shell; when fully grown to about 5 inches in diameter, the inner thickened rays form strong, elevated, compressed spines or tubercles. 5. Ammonites Lonsdalii. Pl. V. fig. 2.

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#### DESCRIPTION OF THE PLATES.

All the figures are of the natural size, with the exception of Fig. 1. Pl. VI., which is about one-half.

PLATE III. Fig. 1, 2, 3. Am. Elizabethæ.

1. Simplest form.

2. Most usual character.

3. An uncompressed specimen.

4. Exhibits characters proving the specific identity of Figs. 1, 2, 3.

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- XX.—A List of Testaceous Mollusca collected in the Shetland Isles during a few days' residence there in the autumn of this year, and not noticed by Dr. Fleming in his 'History of British Animals' as indigenous to that country. By J. Gwyn Jeffreys, Esq., F.R. & L.S., &c.
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- 7. Natica Helicoïdes. Dr. Johnson in Trans. of Berwickshire Nat. Hist. Society. One specimen (the second which appears to have been recorded) was found by me while dredging in Lerwick Sound; it presents some generic differences (particularly in the aperture and umbilicus) from Natica. The figure in the Transactions of the Berwickshire Natural History Society is erroneously represented as reversed, and in other respects does not give a good idea of the shell.
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2. Rissoa purpurea (n. s.). At Scalloway.

- 3. Pyramidella (?) interstincta [Odostomia interstincta, Fleming]. In Lerwick Sound, among coral.
- 4. ——— (?) insculpta [Odostomia insculpta, Fleming]. With the last.
- Eulima Donovani [Phasianella polita, Fleming]. Lerwick Sound: not uncommon.
- 7. Natica Helicoïdes. Dr. Johnson in Trans. of Berwickshire Nat. Hist. Society. One specimen (the second which appears to have been recorded) was found by me while dredging in Lerwick Sound; it presents some generic differences (particularly in the aperture and umbilicus) from Natica. The figure in the Transactions of the Berwickshire Natural History Society is erroneously represented as reversed, and in other respects does not give a good idea of the shell.
  usus albus (n. s.). In Lerwick Sound; a single specimen, but very distinct from any of its congeners.